# Claims

[c1]    A method for improving compression of data, comprising:

arranging the data on a mixed format physical layout;

dividing the data on a mixed format physical layout into fixed-sized fields and

variable sized fields; and

compressing the data of the variable sized fields and the fixed-sized fields.

[c2]    The method defined in claim 1, further comprising:

storing sizes of the fixed-sized fields in a data dictionary;

storing frequency of the data in the fixed-sized fields and the variable-sized

fields in the data dictionary; and

storing information common to all records in the fixed-sized fields and variable

sized fields in the data dictionary.

[c3]    The method defined in claim 1, wherein the fixed-sized fields further comprise

field values.

[c4]    The method defined in claim 1, wherein the fixed-sized fields further comprise

field offsets.

[c5]    The method defined in claim 1, wherein the fixed-sized fields further comprise

pointers into the data dictionary.

[c6]    The method for compressing the data in the fixed-sized fields as defined in

claim 3, further comprising:

storing a field value of the fixed-sized field in an additional variable-sized field;

coding the value of the fixed-sized field as of a field offset by pointing the field

offset to the additional variable-sized field.

[c7]    The method for compressing the data in the variable-sized fields as defined in

claim 3, further comprising:

storing frequently occurring long values of the fields in the data dictionary;

coding a value of the variable-sized field as of the field offset by pointing the

field offset into the data dictionary, wherein the value of the variable-sized field

is a redundant value.

[c8]    The method for compressing the data in the variable-sized fields as defined in claim 5, further comprising:
coding a value of the variable-sized field as of the field offset by encoding the field offset into a record, wherein the value of the variable-sized field is a non-redundant value.

[c9]    The method for compressing the data in the variable-sized fields as defined in claim 3, further comprising:
storing frequently occurring long values of the fields in a second data dictionary, wherein the second data dictionary is larger than the data dictionary;
coding a value of the variable-sized field as of the field value by pointing the field value into the second data dictionary, wherein the field offset is not large enough for the second data dictionary.

[c10]   A method for improving compression of data, comprising: arranging the data on a mixed format layout, wherein the data comprises of a group of correlated fields;
dividing the data on a mixed format physical layout into fixed-sized fields and variable-sized fields; and
compressing the data of the variable-sized fields and the fixed-sized fields.

[c11]   The method defined in claim 10, further comprising:
storing sizes of the fixed-sized fields in a data dictionary; storing frequency of the data in the fixed-sized fields and the variable-sized fields in the data dictionary;
storing information common to all records in the fixed-sized fields and variable sized fields in the data dictionary.

[c12]   The method defined in claim 10, wherein the fixed-sized fields comprise of field values.

[c13]   The method defined in claim 10, wherein the fixed-sized fields comprise of field offsets.

[c14]   The method defined in claim 10, wherein the fixed-sized fields comprise of pointers into the data dictionary.

[c15]     The method for compressing the data as defined in claim 12, further
          comprising:
          storing frequently occurring values for the group of correlated fields in the data
          dictionary; and
          coding a frequently occurring value for the group by pointing the field offset,
          belonging to the group, to the data dictionary.

[c16]     The method for compressing the data as defined in claim 15, further
          comprising:
          coding an infrequently occurring value for the group, wherein the field offset,
          belonging to the group, points to the record in the field.

[c17]     The method for retrieving compressed data, comprising:
          receiving a request for data in a compressed database;
          receiving compressed database on a mixed format physical layout responsive to
          the request, wherein the mixed format physical layout comprises of fixed fields
          and variable fields;
          searching for a value in the fixed fields corresponding to the request for data;
          retrieving the value in the fixed fields corresponding to the requested data.

[c18]     The method defined in claim 17, wherein the retrieving step further comprises:
          retrieving a dictionary entry if the value of the fixed field comprises of a
          dictionary pointer;
          retrieving a value starting from a field offset if the value of the fixed field
          comprises of the field offset; and
          retrieving a same field from that record, if the value of the fixed field comprises
          of a record offset.

[c19]     An apparatus for improving compression of data, comprising:
          means for arranging the data on a mixed format physical layout;
          means for dividing the data on a mixed format physical layout into fixed-sized
          fields and variable sized fields; and
          means for compressing the data of the variable sized fields and the fixed-sized
          fields.

[c20]     An apparatus for retrieving a compressed data, comprising:

means for receiving a request for decompressing a requested compressed data;

means for receiving the compressed data on a mixed format physical layout responsive to the request, wherein the mixed format physical layout comprises of fixed fields and variable fields;

searching for a value in the fixed fields;

means for retrieving the value in the fixed fields corresponding to the requested compressed data.

[c21]     A compressible computer medium, comprising a plurality of instructions to cause a computer to perform the steps of:

arranging the data on a mixed format physical layout;

dividing the data on a mixed format physical layout into fixed-sized fields and variable sized fields; and

compressing the data of the variable sized fields and the fixed-sized fields.

[c22]     The compressible computer medium according to claim 21, wherein the instructions further cause the computer to perform the steps of:

storing sizes of the fixed-sized fields in a data dictionary;

storing frequency of the data in the fixed-sized fields and the variable-sized fields in the data dictionary;

storing information common to all records in the fixed-sized fields and variable sized fields in the data dictionary.

[c23]     The compressible computer medium of claim 21, wherein the fixed-sized fields comprise of field values.

[c24]     The compressible computer medium of claim 21, wherein the fixed-sized fields comprise of field offsets.

[c25]     The compressible computer medium of claim 22, wherein the fixed-sized fields comprise of pointers into the data dictionary.

[c26]     The compressible computer medium according to claim 23, wherein the instructions further cause the computer to perform the steps of:

storing a value of the fixed-sized field in an additional variable-sized field;

coding the value of the fix-sized field as of a field offset by pointing the field offset to the additional variable-sized field.

[c27]       The compressible computer medium according to claim 23, wherein the instructions further cause the computer to perform the steps of:
storing frequently occurring long values of the fields in the data dictionary;
coding a value of the variable-sized field as of the field offset by pointing the field offset into the data dictionary, wherein the value of the variable-sized field is a redundant value.

[c28]       The compressible computer medium according to claim 25, wherein the instructions further cause the computer to perform the steps of:
coding a value of the variable-sized field as of the field offset by encoding the field offset into a record, wherein the value of the variable-sized field is a non-redundant value.

[c29]       The compressible computer medium according to claim 23, wherein the instructions further cause the computer to perform the steps of:
storing frequently occurring long values of the fields in a second data dictionary, wherein the second data dictionary is larger than the data dictionary;
coding a value of the variable-sized field as of the field value by pointing the field value into the second data dictionary, wherein the field offset is not large enough for the second data dictionary.